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AN EXPLORATION OF INNOVATION STRATEGIES ADOPTED BY TELECOMMUNICATION SERVICE PROVIDERS FOR COMPETITIVE ADVANTAGE IN KENYA: A STUDY OF AIRTEL KENYA

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ABSTRACT

Innovation strategy provides a clear direction and focuses the effort of the entire organization on a common innovation goal. This study seeks to investigate the innovation strategies adopted by telecommunication service providers for competitive advantage in Kenya with special focus on Airtel Kenya. This research problem is studied through the use of descriptive research design. The target population for this study is the 68 employees of Airtel Kenya at the head office in Nairobi and 100 customer of Airtel Kenya. Stratified random sampling and purposive random sampling techniques were used to select the sample size of 158 respondents since the population of interest is not homogeneous and could be divided into three strata namely; top, middle and low level management. Primary and secondary data is gathered. Primary data was collected by administering survey questionnaires and interview schedules whiles secondary data is gathered from inside the company, libraries, annual reports, published data etc. Qualitative data was analyzed by the use of descriptive statistics using SPSS (version 20). Chi Square was used to test the hypothesis. Content analysis was used to test data that is qualitative in nature, whiles ANOVA was used to test the level of significance of the variables. In addition, the study conducted a multiple regression analysis to generate quantitative reports through tabulations, percentages, and measures of central tendency. The study established that technological innovation strategies, product innovation strategies, marketing innovation strategies, and process innovation strategies had significant influence effect competitive advantage of Airtel Kenya Limited. The study concludes that technological innovation strategies, product innovation strategies, marketing innovation strategies, and process innovation strategies all had a positive influence on competitive advantage of Airtel Kenya Limited. The study recomends that; It is very crucial for the telecommunication firms to keep innovating by investing heavily in the research and development in order to overcome the challenge of an improved innovative and efficient product for the consumers. Therefore, firms should continually invest in new technology or new product, market innovation and process innovation strategies so as to ensure insure profitability for themselves.

Key words: *Innovation, Competition, Airtel and communication*

INTRODUCTION

Innovation can be viewed as the application of better solutions that meet new requirements, inarticulate needs, or existing market needs. This is accomplished through more effective products, process, service, technology, or ideas that are readily available to markets, governments and society. The term innovation can be defined as something original and more effective and, as a consequence, new, that "breaks into" the market or society.

While a novel device is often described as an innovation, in economics, management science, and other fields of practice and analysis innovation is generally considered to be a process that brings together various novel ideas in a way that they have an impact on society. Innovation differs from invention in that innovation refers to the use of a better novel idea or method, whereas invention refers more directly to the creation of the idea or method itself. Innovation differs from improvement in that innovation refers to the notion of doing something different rather than doing the same thing better. The ability to innovate is increasingly viewed as the single most important factor in developing and sustaining competitive advantage (Tidd, 2001). Much emphasis has been placed on building innovative organizations and the management of the innovation process, as essential elements of organizational survival (Brown, 1997).

Innovation is an ambiguous concept, attracting multiple and often conflicting definitions, and conveying different things to different people both in literature and in organizations (Lees, 1992). Storey (1989) suggests that the conceptualizations about what innovation is, is closely wrapped up with what it is for, because, clearly, it is not an end in itself. Hence, to a large extent, conceptualizations have to be inferred from treatments of its objectives.

For innovation to occur, something more than the generation of a creative idea or insight is required. The insight must be put into action to make a genuine difference, resulting for example, in new or altered business processes within the organization, or changes in the products and services provided. A further characterization of innovation is as an organizational or management process. Davila, Marc, Epstein and Robert (2006) suggests that, innovation, like many business functions, is a management process that requires specific tools, rules, and discipline.

In today's global and dynamic competitive environment, product innovation is becoming more and more relevant, mainly as a result of three major trends: intense international competition, fragmented and demanding markets, and diverse and rapidly changing technologies (Wheelwright & Clark, 1992). Firms that offer products that are adapted to the needs and wants of target customers and market them faster and more efficiently than their competitors, are in a better position to create a sustainable competitive advantage (Calantone, 1995). Competitive advantage is increasingly derived from knowledge and technological skills and experience in the creation of new products (Teece, 1997).

Airtel Kenya Limited’s Innovation Strategies

Airtel Kenya Limited provides mobile communication services. It offers pre-paid and post-paid services, messaging, mobile number portability services, bill payment services, top ups, and Internet-services. The company offers phones, SIM cards, airtime top-up cards, and accessories through its shops in Kenya. It offers a host of value added services including: Airtel Money, Prepaid and Postpaid plans, One Network, Blackberry devices and services, International

roaming, Local and international text messaging, 24-hour customer care centre, Internet access, Directory enquires, SMS information services, Mobile Top up and Me 2 U.

Airtel Kenya prides itself of being the most innovative mobile phone operator company in Kenya. This is attested by the many value added products that it currently offers in the market. It recognizes the role its services play in the way that people live and work by making business easier and more efficient. In addition the company makes business easier and more efficient. They help families and communities to stay in touch, and individuals to feel connected through the process of taking the mobile communications to Kenya's vibrant and diverse communities.

Several opportunities exist in the company due to the unique services and value added services it offers. The strengths that the company enjoys include having a wide network coverage, clarity of the network and having a coverage of 82% of the Kenyan population, improved distributor investment on bank guarantee, dedicated account developers, a changed perception of the company being expensive as well as developing segment specific products. Airtel Kenya signed up mobile virtual network operators (MVNOs) namely Equity's Finserve, Kenya Airways, Tangaza and Zioncell, that use the Airtel mobile network infrastructure to roll out their services.

Airtel Kenya is the second largest mobile phone operator in Kenya. It had 4 million subscribers as at 2011. Airtel has kept costs down in Kenya by sharing infrastructure with existing players and through its partnerships with service providers including IBM Corp Huawei Technologies Co. and Nokia Oyj, said Rene Meza, managing director of the Kenyan unit. Airtel Kenya has also rolled out 3G services as part of a push for more customers and a return to profit at its unprofitable African operations. The company has also introduced new products which includes include e-mail and e-commerce services. Airtel is considering subsidizing laptops and Internet-enabled handsets to drive data use in East Africa's biggest economy.

Statement of the Problem

Innovation strategy provides a clear direction and focuses the effort of the entire organization on a common innovation goal. Telecommunication firms in Kenya have adopted innovation strategies in various ways which include Voice, SMS, Data, Mobile Money as well as partnerships with several organizations. During the period of innovation they have experienced performance in aspects of market share and profitability. Airtel Kenya, the country's second largest telecommunication service provider has consistently been the second player in the industry with only 16% of the market share. It has changed ownership and rebranded four times in the last 15 years during which it has had nine chief executives. Airtel does not even have a quarter of the relevant market share. Which innovation strategies should Airtel adopt in order to gain competitive advantage in the telecommunication industry? It is against this problem that the research seeks to find solution to this mishap. Hence this study seeks to investigate the innovation strategies adopted by telecommunication service providers for competitive advantage in Kenya with special focus on Airtel Kenya Limited.

1.3 Objectives of the Study

Objectives

i. To investigate the innovation strategies adopted by Airtel Kenya Limited for competitive advantage in Kenya.
ii. To examine the extent to which technological innovations has influenced competitive advantage of Airtel Kenya Limited.

iii. To investigate the extent to which product innovations lead to competitive advantage of Airtel Kenya Limited

iv. To examine the extent to which market innovations influence competitive advantage of Airtel Kenya Limited

Hypothesis

1. H_0: There is no significant relationship between technological innovations and the competitive advantage of Airtel Kenya Limited
2. H_0: There is no significant relationship between product innovations and the competitive advantage of Airtel Kenya Limited
3. H_0: There is no significant relationship between market innovations and the competitive advantage of Airtel Kenya Limited
4. H_0: There is no significant relationship between process innovations and the competitive advantage of Airtel Kenya Limited

Justification of the Study

Innovation is a tool of management for strategic change, as it provides a way of how to create the conditions that make proactive change a natural way of life. It aims at developing a change adept organization that anticipates, creates and responds effectively to change in the external and internal environments to increase profit potential of an organization. From the background of this study, it is only those companies that are able to adapt to the changing environment, adopt new ideas and innovations in doing business that can be guaranteed hope of survival. Some of the forces of change that have greatly influenced the industry include intense competition, regulation, and technological advancement. There is therefore dire need to investigate the innovation strategies adopted by the organization on its performance. This study will therefore focus on Airtel Kenya Limited as the second player in the telecommunication industry.

Scope of the Study

The study is about the innovation strategies adopted by telecommunication service providers. The study focused more on the innovation strategies that Airtel Kenya Limited should adopt to gain competitive advantage. Hence, the data was be collected from the Head office of Airtel Kenya Limited in Nairobi and sampled customers.

Literature Review

Technological innovation is used to refer to the process through which technological advances are produced (Goh, 2002). The innovation process includes a set of activities that contribute to increase in the capacity to produce new goods and services (product innovations) or to implement new forms of production (process innovations). Therefore, the concept of technological innovation is associated with the idea of a flow of generation, application, and dissemination of technologies.

Technology exerts a significant influence on the ability to innovate and is viewed both as a major source of competitive advantage and of new product innovation. Often, organizations experience problems in this area, which are caused by lack of capital expenditure on technology and insufficient expertise to use the technology to its maximum effectiveness (Alstrup, 2000).

Hammer (1990) stresses that organisations should obliterate rather than automate believing that technology is often introduced for technology's sake without contributing to the overall

effectiveness of the operation. It is important to link technology to innovation in sustaining competitiveness. Organisations that can combine customer value innovation (Kim and Mauborgne, 1999) with technology innovation have an increased chance of enjoying sustainable growth and profit (Profitability).

Disruptive Innovation Theory

Disruptive innovation theory was hypothesized by Christensen in 1997. He suggested that in a quickly changing and uncertain world, innovation is the key to competitive advantage. Yet innovation also increases uncertainty and market pressure (Lettice & Thomond, 2006). The more radical the innovation, the more difficult it is to estimate its market acceptance and potential. The increasing complexity and market dynamics create a substantial knowledge gap between theory and practice. Many companies are not organized to give new ideas a chance, to recognize trend breaking points in the market, to adapt quickly to changing market circumstances, or to cause market changes in the first place (Markides, 1999).

Disruptive innovations change the game. They attack an existing business, and offer great opportunities for new profit growth. Only radical innovations lead to growth (Hamel, 2003). Lettice and Thomond (2002) define disruptive innovation as: A successfully exploited product, service or business model that significantly transforms the demand and needs of an existing market and disrupts its former key players.

Product Innovation Strategies

The product innovation strategy is effectively implemented when the business provides unique or superior value to the customer through product quality, features, or after-sale support and service. Firms following this innovation strategy can charge a higher price for their product based on the product characteristics, the delivery system, the quality of service, or the distribution channels. Improved and radically changed products are regarded as particularly important for long term business growth (Oke & Goffin, 2001).

The power of product innovation in helping companies retain and grow competitive position is indisputable. Products have to be updated and completely renewed to retain strong market presence. It is not enough to avidly engage in product innovation for its own sake - what some managers refer to as “innoflation” (Mitchell, 1996). It is important to delineate just what product features are to be improved or radically changed. For this purpose, analysts have differentiated between “core” product features and help provided in evaluating, buying and using the core product. The amount of help or support provided will depend on the needs of particular customers. An appropriate premium price can normally be charged for support. Support provides a potentially profitable lever for gaining competitive advantage. It enables a supplier to sell the same core product to different customer groups as different offerings (Storey & Easingwood, 1998).

Resource-Based View Theory

The resource-based view (RBV) of Wernerfelt (1984) suggests that competitiveness can be achieved by innovatively delivering superior value to customers. The extant literature focuses on the strategic identification and use of resources by a firm for developing a sustained competitive advantage (Barney, 1991). International business theorists also explain the success and failures of firms across boundaries by considering the competitiveness of their subsidiaries or local alliances

in emerging markets (Luo, 2003). Local knowledge provided by a subsidiary or local alliance becomes an important resource for conceptualizing value as per the local requirements (Gupta, 2011).

According to Resource Based Theory resources are inputs into a firm's production process and can be classified into three categories as; physical capital, human capital and organizational capital (Crook, 2008). A capability is a capacity for a set of resources to perform a stretch task of an activity. Each organization is a collection of unique resources and capabilities that provides the basis for its strategy and the primary source of its returns. In the 21st-century hyper-competitive landscape, a firm is a collection of evolving capabilities that is managed dynamically in pursuit of above-average returns. Thus, differences in firm's performances across time are driven primarily by their unique resources and capabilities rather than by an industry's structural characteristics (Crook, 2008).

Market Innovation Strategies

Market innovation is concerned with improving the mix of target markets and how chosen markets are best served (Mitchell, 1996). Its purpose is to identify better (new) potential markets; and better (new) ways to serve target markets. We deal first with the identification of potential markets. Identification is achieved through skillful market segmentation, (Walker, 1996). Market segmentation, which involves dividing a total potential market into smaller more manageable parts, is critically important if the aim is to develop the profitability of a business to the full. Incomplete market segmentation will result in a less than optimal mix of target markets, meaning that revenues which might have been earned are misread.

In recent years "benefit segmentation" has become more widely used (Hooley, 1998). It is based on the study of buyers' attitudes, on the assumption that in great measure it is needs and benefits which make up markets and which alter markets. In this form of segmentation emphasis is on "usage occasions", namely how buyers seek to gain benefits in particular buying situations. This form of segmentation is particularly powerful for dividing a total potential market into meaningful market opportunities. It derives its power from the assumption that the same individual buyer can have different usage needs for the same core product. This happens quite frequently in practice, as for example when a person travels first class on business but second class for private travel. Each usage need presents a potential market opportunity.

Theory of Strategic Balancing

Strategic balancing is based on the principle that the strategy of a company is partly equivalent to the strategy of an individual. Indeed, the performance of companies is influenced by the actors' behaviour, including the system of leaders' values (Collins, Maydew & Weiss, 1997). An alliance wavers between multiple antagonistic poles that represent cooperation and competition. This gives room to various configurations of alliances, which disappear only if the alliance swings towards a majority of poles of confrontation.

The strategic balancing gathers three models, namely the relational, symbiotic and deployment models. Competition proves to be part of the relational model and the model of deployment. It can be subject to alternation between the two antagonistic strategies, the one being predominantly cooperative as described by the relational model and the other being predominantly competing as characterized by the model of deployment. The company can then take turns at adopting the two strategies in order to keep their alliance balanced. This idea is very

close to that of Belsley, (1980), according to whom there are three types of competitive relationships: competition-dominated, cooperation-dominated, and equal relationships. The latter is similar to the alternation between the relational model and the model of deployment described by Barney, (2002). Owing to the fact that specific developments in the business environment need to be closely monitored, it is imperative that senior corporate intelligence professionals think in terms of integrating competitive intelligence work with marketing intelligence work.

Process Innovation Strategies

Process innovation embraces quality function deployment and business process reengineering (Cumming, 1998). It is a type of innovation which is not easy, but its purpose is now well understood. An efficient supplier who keeps working on productivity gains can expect, over time, to develop products that offer the same performance at a lower cost. Such cost reductions may, or may not, be passed on to customers in the form of lower prices. Process innovation is important in both the supply of the core product as well as in the support part of any offer. Both components of an offer require quality standards to be met and maintained. In the case of services, which by their very nature rely on personal interactions to achieve results, the management of process innovation is a particularly challenging activity (John & Storey, 1998).

Gilbert and Birnbaum-More (2006) take up findings of the influence of dynamics on technology and the market in the form of a meta-study, in which they bring together the empirical results of different surveys. Based on different sources of competitive advantage, they propose the important influencing factors at industry and technology level as well as at product or service level. First-mover advantage rises as industry fragmentation and increasing innovation velocity. This effect is emphasized when switching costs are high and technological infrastructure is sufficiently available. The implementation of a first-mover strategy is only successful under these circumstances by assuming technological leadership and associated R&D expenditure. Diffusion rates, degree of novelty and product complexity, however, have negative effects on first-mover advantage. The second mover has the advantage that the pioneer has already found technological solutions and has developed these according to market preference. There are no costs for the followers, so a cost leadership strategy is promising.

An important contribution to the discussion of first-mover advantages in radical innovation comes from Markides and Geroski (2005). The authors show anecdotally that the process for radical innovations is mainly driven by small firms or start-ups, very often without an established brand name. They develop a technology pushing innovation over long periods in niche markets and consider it less risky to pioneer a radical innovation. The innovation design is developed in an elaborate exploration process during which variations have to be checked with regard to the market preference. The pioneer's major role is the colonization of the new market (Markides & Geroski, 2005). The established firms' free ride on the technology and market experience of the brave pioneer. They exploit the developing mass market and the dominant designs by trying to drive out the first mover with rival variants on the dominant design, and to consolidate the market into a mass market.

Research Design

This research problem is studied through the use of a descriptive research design. According to Cooper and Schindler (2003), a descriptive study is concerned with finding out the what, where and how of a phenomenon. This study therefore is able to generalize the findings to all the

enterprises. This method is concerned with the intense investigation of problem solving situations in which problems are relevant to the research problem. The study focuses on an investigation of innovation strategies adopted by telecommunication service providers for competitive advantage in Kenya. The underlining concept was to select several targeted cases where an intensive analysis identifies the possible alternatives for solving the research questions on the basis of the existing solution applied in the selected case study. The study attempts to describe and define a subject, often by creating a profile of a group of problems (Cooper & Schindler, 2003).

Target Population

Target population as defined by Frederic (2010), is a universal set of the study of all members of real or hypothetical set of people, events or objects to which an investigator wishes to generalize the result. The target population was employee of Airtel Kenya at their head office in Nairobi and 100 customer of Airtel who were randomly selected from their customer care in Nairobi CBD area. There are 68 employees of Airtel Kenya Limited at their head offices in Nairobi. The target population was categorized as follows in Table 3.1.

Table 3.1: Target Population

Category	Frequency	Percentage
Top Management	9	5.4
Middle Level Management	17	10.1
Low Level Management	42	25.0
Customers	100	59.5
Total	**168**	**5.4**

Source: Airtel HRM records 2017

Sampling Procedure

Stratified random sampling technique is used to select the sample. It is a mini-reproduction of the Population. According to Kerry & Bland (1998) the technique estimates the overall population parameters with greater precision and ensures a more representative sample is derived from a relatively homogeneous population. The study group which is the population is divided into three strata i.e. low level, middle level and top level management. This in turn increases the precision of any estimation methods used.

The study adopted a mathematical formula for the purpose of determining the sample size. (Taro Yemane, 1970) has suggested the following mathematical formula for determining sample size.

$$N = \frac{n}{1+N(e)2}$$

Where, N is the total population size, and e is the error or confidence level. The conventional confidence level of 95% was used to ensure a more accurate result from the sample. Based on this, the error term would equal to 0.05. Using the total population of 68 and error margin of 0.05, the sample size was calculated as follows.

n =68

1 + 68 $(.05)^2$

n = 68/1.17 = 58

n=58 Respondents

Out of the total population of 68 employees of Airtel Kenya, a sample size of 58 was taken. Stratified proportionate sampling was adopted to select the 58 participants. 58 represented 85.3% of the total population, thus from each strata the research picked 85.3%. Census method was used to select the 100 customer of Airtel Kenya at their Customer Care in CBD areas, thus the sample size of the study was made up of 158 employees and customer of Airtel Kenya. The selection is as follows:

Table 3.2: Sample Size

Category	Frequency	Percent	Sample
Top Management	9	85.3%	8
Middle Level Management	17	85.3%	14
Low Level Management	42	85.3%	36
Customers	100	100%	100
Total	**168**	94%	158

Source: Researcher, 2017

Pilot Test

The researcher conducted a pilot study to test the viability and reliability of the questionnaire.

Reliability Coefficients

Scale	Cronbach's Alpha	Number of Items
Technological innovation strategies	0.821	4
Product innovation strategies	0.797	4
Marketing innovation strategies	0.848	8
Process innovation strategies	0.713	6

Source: Researcher, 2017

Reliability of the questionnaire was evaluated through Cronbach's Alpha which measures the internal consistency. Cronbach's alpha was calculated by application of SPSS for reliability analysis. The value of the alpha coefficient ranges from 0-1 and may be used to describe the reliability of factors extracted from dichotomous and or multi-point formatted questionnaires or scales. A higher value shows a more reliable generated scale. Cooper & Schindler (2008) has indicated 0.7 to be an acceptable reliability coefficient. Table above shows that Marketing innovation strategies had the highest reliability ($\alpha = 0.848$) followed by Technological innovation strategies ($\alpha = 0.821$), then Product innovation strategies ($\alpha = 0.797$) and Process innovation strategies ($\alpha = 0.713$). This illustrates that all the four scales were reliable as their reliability values exceeded the prescribed threshold of 0.7.

Data Collection Procedure

This study collected both primary and secondary data. Primary data is gathered and generated for the study at hand directly from respondents mainly using questionnaires. With regard to an investigation of innovation strategies adopted by telecommunication service providers for competitive advantage in Kenya, the study used a survey questionnaire and interview schedule

to administer to each member of the sample population. The questionnaire was carefully designed and tested with a few members of the population for further improvements. This was done in order to enhance its validity and the accuracy of data to be collected for the study.

Data Analysis and Presentation

Before processing the responses, the completed questionnaires were edited for completeness and consistency. Quantitative data collected was analyzed by the use of descriptive statistics using SPSS (Version 20) and presented through percentages, means, standard deviations and frequencies. Chi square was used to test the hypothesis. The information was displayed by use of bar charts, graphs and pie charts and in prose-form. This was done by tallying up responses, computing percentages of variations in response as well as describing and interpreting the data in line with the study objectives and assumptions through use of SPSS (Version 20) to communicate research findings.

Content analysis was used to test data that is qualitative in nature or aspect of the data collected from the open ended questions. The study also used ANOVA to test the level of significant of the variables on the dependent variable at 95% level of significance. In addition, the study conducted a multiple regression analysis. The regression equation will be:

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$

Whereby Y = Competitive advantage,

X_1= technological innovation strategies,

X_2= product innovation strategies,

X_3= market innovation strategies

X_4= process innovation strategies,

While $\beta_{0,}$ $\beta_{1,}$ β_2, $\beta_{3,}$ β_4 and β_5 are coefficients of determination and ε is the error term. This generated quantitative reports through tabulations, percentages, and measures of central tendency.

Data Analysis and Interpretations

The chapter presents the background information of the respondents, findings of the analysis based on the objectives of the study. Descriptive statistics have been used to discuss the findings of the study. The study targeted a sample size of 158 employees from which 137 respondents filled in and returned the questionnaires making a response rate of 86.7%. This response rate was satisfactory to make conclusions for the study as it acted as a representative. According to Mugenda and Mugenda (1999), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Based on the assertion, the response rate was considered to be excellent.

Table 4.3: Period of Service in Airtel Kenya Limited

Period of service	Frequency	Percentage
Less than three years	5	10
Less than five years	9	18
Less than seven years	15	30
More than seven years	21	42
Total	**50**	**100**

Source: Researcher, 2017

Respondents were requested to indicate the period they had worked in Airtel Kenya Limited. From the research findings; 42% of the respondents indicated that they had worked at Airtel Kenya for more than seven years, 30% of the respondents indicated that they had worked for less than seven years , 18% of the respondents indicated that they had worked for less than five years, whereas 10% of the respondents indicated that they had worked for a period of less than three years. This implies that majority of the respondents had worked for a considerable period of time qualifying them to give credible information relating to this research.

Table 4.4: Level of management

Level of management	Frequency	Percentage
Top Level	8	16
Middle Level	12	24
Low Level	30	60
Total	**50**	**100**

Source: Researcher, 2017

On level of management, the study findings revealed 60% of the respondents worked with low management, 24% of the respondents worked with middle management and 16% of the respondents worked with top management. This implies that the respondents were fairly drawn from all levels of management.

Table 4.5: Marital status

Marital status	Frequency	Percentage
Married	34	68
Not married	16	32
Total	**50**	**100**

Source: Researcher, 2017

Respondents were requested to indicate their marital status. From the research findings, the study established that majority of the respondents were married men and women making 68% and 32% of the respondents not married.

Table 4.6: Gender

Gender	Frequency	Percentage
Male	26	52
Female	24	48
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish the gender distribution of the respondents. The research findings revealed that most of the respondents as shown by 52% were males whereas 48% of the respondents were females; this implies that both men and women were fairly engaged in this research.

Technological Innovation Strategies

Table 4.8: Amount spend on research and development annually

Amount	Frequency	Percentage
Less than 500,000	3	6
Between 500,000 to 1,000,000	23	46
Between 1,000,000 to 5,000,000	16	32
Over 5,000,000	8	16
Total	**50**	**100**

Source: Researcher, 2017

The study requested the respondents to indicate the approximate amount which the company spends on research and development annually. From research findings, 46% of the respondents indicated that the company spends between 500,000 to 1,000,000, 32% of the respondents indicated that the company spends between 1,000,000 and 5,000,000. 16% of the respondents indicated that the company spends over 5,000,000 while 6% of the respondents indicated that the company spends less than 500,000. This implies that the company spends between 500,000 to 1,000,000 on research and development annually.

Table 4.9: Number of skilled personnel hired to work on new ideas in the last one year

Number of skilled personnel	Frequency	Percentage
Between 1 to 5	15	30
Between 5 and 10	8	16
Above 10	27	54
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish the number of skilled personnel hired to work on new ideas in the last one year. From the research findings, majority of the respondents as shown by 54% indicated above 10 employees, 30% of the respondents indicated between 1 and 5 whereas 16% of the respondents indicated between 5 and 10. This implies that the number of skilled personnel hired to work on new ideas in the last one year were more than 10 in number.

Table 4.70: Periodic time of staff training in the organization

Periodic time staff training	Frequency	Percentage
Quarterly	10	20
Semi Annually	33	66
Annually	7	14
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish how often the staff underwent training in the organization. From the research findings, majority of the respondents as shown by 66% indicated semiannually and 20% of the respondents indicated quarterly whereas 14% of the respondents indicated annually. This implies that employees training were most conducted after every six months.

Table 4.81: Whether the management places enough importance on innovations

Opinion	Frequency	Percentage
Yes	41	82
No	9	18
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish whether the management placed enough importance on innovations and if the same was clearly communicated to employees. From the research findings majority of the respondents as shown by 82% agreed that the management placed enough importance on innovations whereas 18% of the respondents were of the contrary opinion. This implies that management of the company placed enough importance on innovations and that the same was well communicated to all employees. These findings concur with the arguments by Brassington and Pettitt (2000), innovation is important to organizations because it gives companies an opportunity to educate, market and to a certain extent dictate the demand.

Product Innovation Strategies

Table 4.92: Number of new products rolled out by the company in the last one year

Number of new products	Frequency	Percentage
Less than 5	9	18
Between 5 to 10	37	74
Between 10 to 15	4	8
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish the number of new products which the company had rolled out in the last one year. From the research findings majority of the respondents as shown by 74% indicated 5 to 10 products, 18 % of the respondents indicated less than 5 and 8% of the respondents indicated Between 10 to 15. This implies that the organization had introduced Between 5 to 10 products.

Table 4.12: Extent to which rolling out of new products influence the organization's market share

extent	Frequency	Percentage
Very great extent	14	28
Great Extent	28	56
Moderate Extent	8	16
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish the extent to which the rolling out of new products influence the organization's market share. From the research findings, most of the respondents as shown by 56% indicated to a great extent, 28% indicted to a very great extent whereas 16% of the respondents indicated to a moderate extent. This implies that rolling out of new products influence the organization's market share to a great extent.

Table 4.13: Extent to which the "unlimiNET" product influenced the market share of the organization

Extent	Frequency	Percentage
Very great extent	14	28
Great Extent	32	64
Moderate Extent	4	8
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish the extent to which the "unlimiNET" product influenced the market share of the organization. From the research findings, most of the respondents as shown by 64% indicated to a great extent, 28% of the respondents indicted to a very great extent whereas 8% of the respondents indicated to a moderate extent. This implies that the "unlimiNET" product influenced the market share of the organization to a great extent. These findings concur with the arguments by Whilst, the Cambridge MIT institute (2004) who explains that product innovation is very important to organizations in today's market because of this hyper-competitive business climate.

Marketing Innovation Strategies

Table 4.104: Whether pricing company products and services reflect their value

Opinion	Frequency	Percentage
Yes	42	84
No	8	16
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish whether the pricing of the products and services reflects their value. From the research findings majority of the respondents as shown by 84% indicated that pricing of Airtel products and services reflected their value whereas 16% were of the contrary opinion. This implies that the pricing of Airtel products and services reflects their value.

Table 4.15: Extent to which distribution channels influence the profitability of the organization

Extent	Frequency	Percentage
Very great extent	11	22
Great Extent	36	72
Moderate Extent	3	6
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish the extent to which the number of agents or distribution channels in the country influences the profitability of the organization. From the research findings, most of the respondents as shown by 72% indicated to a great extent, 22% of the respondents indicted to a very great extent whereas 6% of the respondents indicated to a moderate extent. This implies that the number of agents or distribution channels in the country influences the profitability of the organization to a great extent.

Table 4.1611: Amount spent on advertisement on quarterly basis

Amount in ksh	Frequency	Percentage
Less than 1000,000	40	80
Between 1000,001 to 5000,000	7	14
Between 5000,000 to 10,000,000	3	6
Total	**50**	**100**

Source: Researcher, 2017

The study sought to determine the amount which the company spends on advertisement on quarterly basis. From the research findings majority of the respondents as shown by 80% indicated that the organization spends less than 1,000,000 on advertisement on a quarterly basis, 14% of the respondents indicated that the organization spends between 1,000,001 to 5,000,000 on advertisement on quarterly basis, whereas 6% of the respondents indicated that the organization spend between 5,000,000 to 10,000,000 on advertising on quarterly basis. This implies that the organization spend less than 1,000,000 on advertisement on quarterly basis,

Process Innovation Strategies

Table 4.17: Number of ICT Hubs in which Airtel has invested in the last 5 years

Number of ICT Hubs	Frequency	Percentage
Less than 5	10	20
Between 5 to 10	34	68
More than 10	6	12
Total	**50**	**100**

Source: Researcher, 2017

The study sought to establish the number of ICT hubs which the company has invested in the last 5 years. From the research findings, majority of the respondents as shown by 68% indicated Between 5 to 10, 20% of the respondents indicated less than 5, whereas 12% of the respondents indicated More than 10. This implies that Airtel has invested in between 5 to 10 ICT hubs in the last 5 years.

Regression Analysis

Table 4.18: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.919	0.844	0.796	.223

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the above table, the value of adjusted R squared was 0.796; an indication that there was variation of 79.6 percent on competitive advantage of Airtel Kenya Limited due to changes in technological innovation strategies, product innovation strategies, marketing innovation strategies, and process innovation strategies at 95 percent confidence interval. This shows that 79.6 percent changes in competitive advantage of Airtel Kenya Limited Could be accounted to technological innovation strategies, product innovation strategies, marketing innovation strategies, and process innovation strategies. R is the correlation coefficient which shows the relationship between the study variables. From the findings shown in the table above it is notable that there extists strong positive relationship

between the study variables as shown by 0.919.

Table 4.19: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.588	4	.647	2.067	.001[b]
	Residual	41.316	132	.313		
	Total	43.904	136			

Critical value =1.997

From the ANOVA statistics, the study's established regression model had a significance level of 0.1% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. The calculated value was greater than the critical value (2.067>1.997) an indication that technological innovation strategies, product innovation strategies, marketing innovation strategies, and process innovation strategies all affects competitive advantage of Airtel Kenya Limited. The significance value was less than 0.05 indicating that the model was significant.

Table 4.12: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.543	1.033		1.494	.001
Technological innovation strategies	.281	.108	.203	2.602	.002
Product innovation strategies	.321	.127	.227	2.528	.003
Marketing innovation strategies	.316	.125	.216	2.528	.001
Process innovation strategies	.376	.113	.251	3.327	.000

From the data in the above table the established regression equation is

$$\mathbf{Y = 1.543 + 0.281X_1 + 0.321X_2 + 0.316\ X_3 + 0.376\ X_4}$$

From the above regression equation it was revealed that technological innovation strategies, product innovation strategies, marketing innovation strategies, and process innovation strategies to a constant zero, the competitive advantage of Airtel Kenya limited would be at 1.543. A unit increase in technological innovation strategies would lead to an increase in competitive advantage of Airtel Kenya limited by a factor of 0.281. A unit increase in product innovation strategies would lead to an increase in competitive advantage of Airtel Kenya limited by a factor of 0.321. A unit increase in marketing innovation strategies would lead to an increase in competitive advantage of Airtel Kenya limited by a factor of 0.316, and a unit increase in process innovation strategies would lead to an increase competitive advantage of Airtel Kenya limited by a factor of 0.376. All the variables were significant as their significant value was less than ($p<0.05$).

Summary, Conclusions and Recommendations

Technological Innovation Strategies

The study established that the Airtel spends between Ksh500,000 to Ksh1,000,000 on research and development annually. The organization had hired more than 10 skilled personnel to work on new ideas in the last one year and conducts employees training mostly after a six months period. The management of the Airtel Kenya Limited places enough importance on innovations and that the same was well communicated to all employees.

Product Innovation Strategies

The study established that Airtel Kenya Limited had introduced between 5 to 10 new products in the last one year and rolling out of new products influence the organization's market share to a great extent**.** There existed provisions for new products that are not very much related to the current products that have been released in the last one year. The "unlimiNET" product has influenced the market share of the organization to a great extent. The study also established that it is important for organizations to develop products that provide a genuine competitive advantage in order to excel. Although the development of new products is a thoroughly complex activity, it is a realistic fact that many products will not achieve commercial expectations and that it is important for organizations to produce innovative products as introducing an existing product is unlikely to successfully penetrate a market

Marketing Innovation Strategies

The study established that the pricing of Airtel products and services reflects their value and the number of agents or distribution channels in the country influence the profitability of the organization to a great extent. Airtel money agents are not easily accessible to the customers and accessibility of Airtel money agents to customers affects organization's market share to a great extent. Information of the products and services was easily available to customers as the company engaged in advertising activities. Among the means of advertisement used by the company include TV, Radio, Newspapers, Posters and Road shows and that the organization spends less than Ksh1, 000,000 on advertising on quarterly basis.

Process Innovation Strategies

On process innovation strategies, the study established that Airtel Kenya Limited had invested in more than 10 ICT hubs in the last 5 years. It invested more than Ksh 10,000,000 in information communication technology equipment in the last one year. The study also revealed that Airtel Kenya Limited had invested in the in modern Software's in the last one year. It also invested between Ksh1, 000,001 to Ksh5, 000,000 in upgrading the internet framework from EDGE to 3G. It has also invested between Ksh1, 000,001 to Ksh5, 000,000 in fiber optic.

Conclusions

The study revealed that technological innovation is a powerful way of securing competitive advantage and a more secure approach to defending strategic positions, and success. Technological innovation can help organizations to better identify market opportunities and exploit them effectively and build a sustainable competitive advantage. Therefore the study

concludes that technological innovations have positive influence on competitive advantage of Airtel Kenya Limited.

The study revealed that product innovations can help capture and retain market shares and increase profitability over competition. Innovation does not only involve generating new ideas and applying them into production or management systems. It also involves opening new markets, new products, new methods and new management systems. Thus the study concludes that product innovations lead to competitive advantage of Airtel Kenya Limited.

The study revealed market innovations facilitate the smooth flow and distribution in all market segments and present the organization's products to the customers depending on consumer likes. Thus the study concludes that market innovations influences competitive advantage of Airtel Kenya Limited

The study revealed that investment in process innovations enabled the organization to keep a step ahead of competitors thus the study concludes that process innovations had a positive influence on competitive advantage of Airtel Kenya Limited.

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